MINERAL EQUILIBRIUM BY CRYSTALLIZATION OF MAGMATIC COMPLEX OF THE BROKEN MASSIVE (HARZ, GERMANY)

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An analysis of influence temperature, pressure and other factors on equilibrium of mineral's rockforming crucially important for investigation thermodynamic condition of crystallization of magmatic, metamorphic, etc. rocks. Consideration of mineral equilibrium based on main pathogenetic concept (***apotectike isothermal crystallization)*** is correct for numerous differentially magmatic complex rocks as well as for forming magmatic Harz. At interpolation rockforming onto ***apotectike*** crystallization apart from temperature and pressure on composition of minerals it should be taken into account activeness of alkalinity as well. The latter complicate the problem and should be taken into account at sampling paragenesis for thermometry and barometry.

Earlier was shown that alkalinity of alloys (from which formed Broken Massivs in the Harz) made two sharp "leaps":

1. From V or I field level of mineral's paragenesis to paragenesis II or IV field - "alkalization";
2. From IV field level to paragenesis of II field - "de-alkalization /acidation".

In order to find out forming temperature of Harz rocks it was chosen pairs coexisting minerals: Hbl-Cpx; Hbl - Opx и Pl-Ort, and fro pressure: Hbl.

Applying Hbl geobarometer on two sapmples of gabbro has testified:

P=0.27±0.5 kbar; P_1=1.15 kbar, P_2=1.58 kbar, average - P=1.36±0.5 kbar.

Simultaneously using geothermometer in the gabbro based on paragenesis Hbl=Cpx showed follows results: T=814.23^{0}C and P=0.27±0.5 kbar, while at P=0.27 kbar paragenesis Hbl-Pl gave following results: T=739.07±75^{0}C.

Structural and mineralogical difference has nice adequacy with acid-alkaline concept (suggested by D.S. Kordzenski). Common phenomenon resorbtion Hrn in the Harz rocks at "reverse" ordered allocation minerals and "reverse" zonality P1 may be explained only increasing crystallization temperature of alkaline minerals at enlarged alkalinity while transition pigeonite Px to diopside and equilibrated ratio of diopside with O1 may caused by isothermal reactions.

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